

N. H. ANDERSON.
DIE CUTTING AND FORMING MACHINE.
APPLICATION FILED JAN. 31, 1917.

Patented Nov. 19, 1918.
3 SHEETS—SHEET 1.

1,284,969.

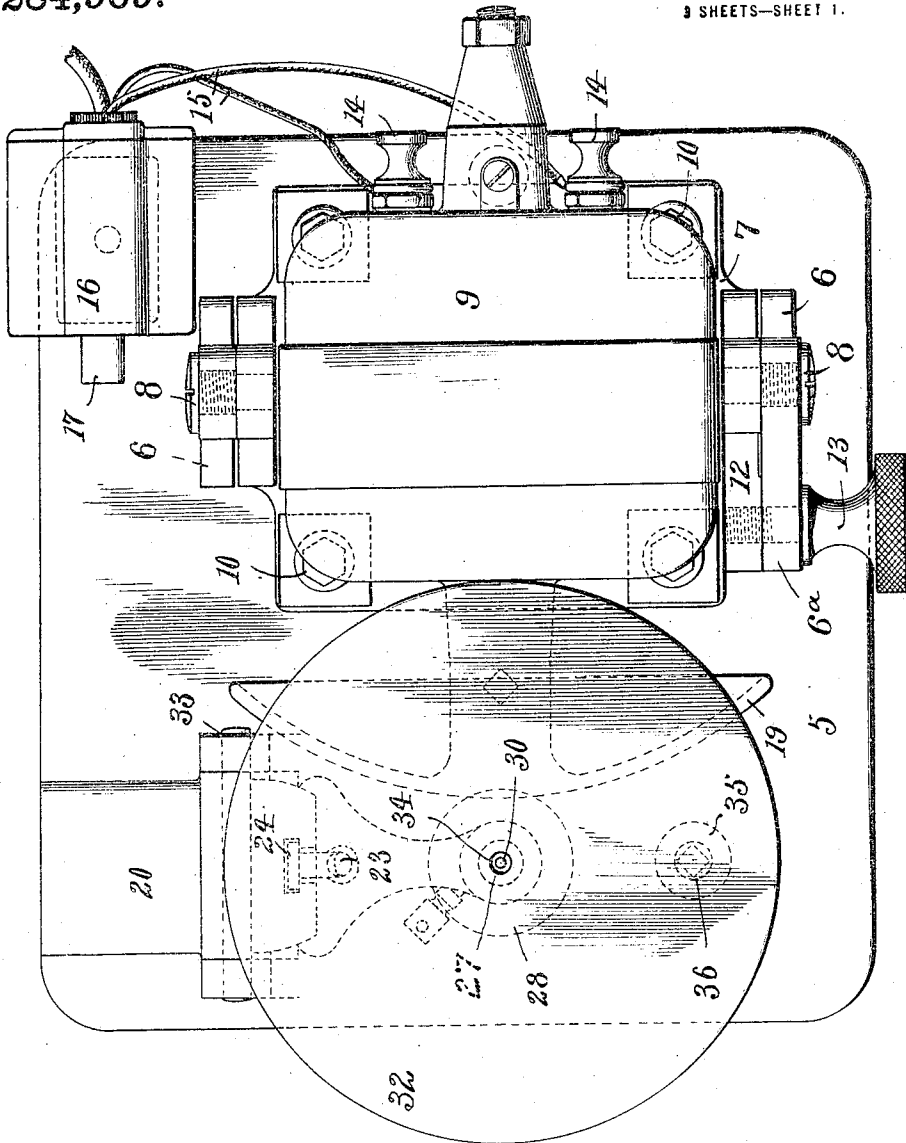


Fig. 1.

Witnesses
Edward P. Hill.
Ruth M. H. Koger

Inventor
Nils H. Anderson
By Chamberlain & Newman
Attorneys

N. H. ANDERSON.
DIE CUTTING AND FORMING MACHINE.
APPLICATION FILED JAN. 31, 1917.

1,284,969.

Patented Nov. 19, 1918.
3 SHEETS—SHEET 2.

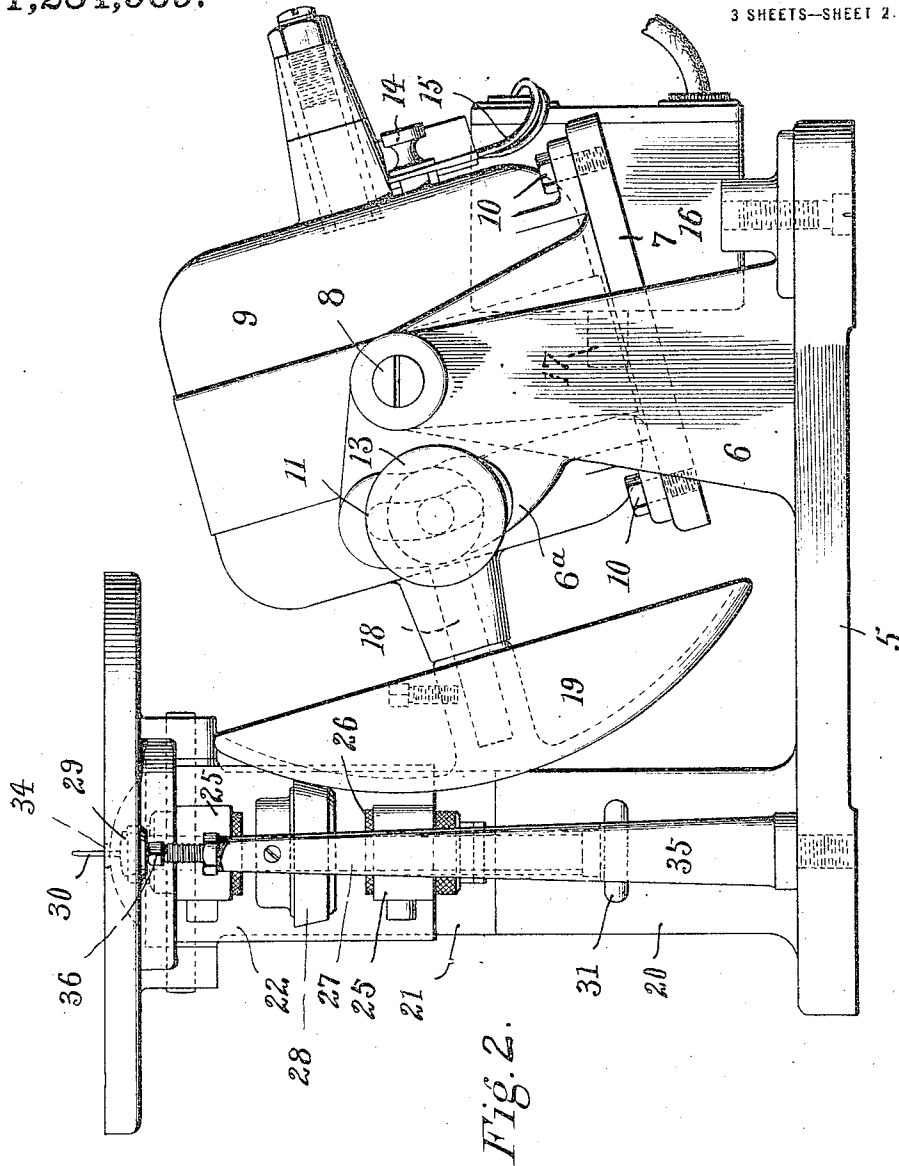


Fig. 2.

Witnesses
Edward A. Hull
Paul M. H. Roger

Inventor
Nils H. Anderson
By *Chambelain & Newman*
Attorneys

N. H. ANDERSON.
DIE CUTTING AND FORMING MACHINE.
APPLICATION FILED JAN. 31, 1917.

Patented Nov. 19, 1918.
3 SHEETS—SHEET 3.

1,284,969.

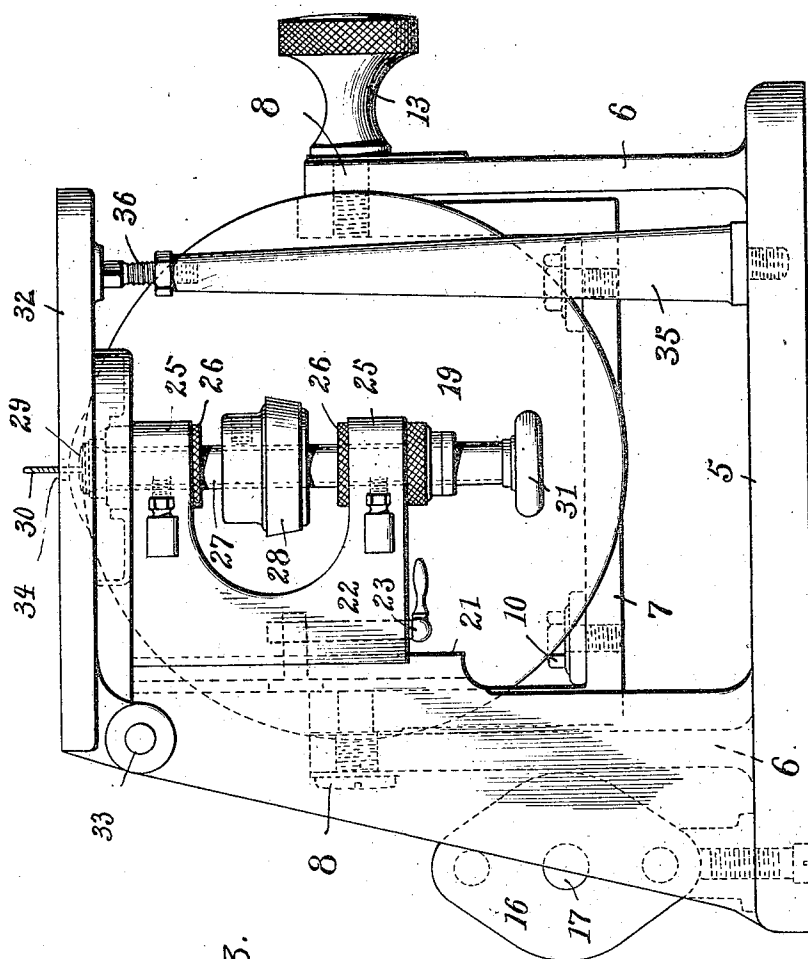


Fig. 3.

Witnesses
Edw. D. Hull
Ruth M. H. Krger

Inventor
Nils H. Anderson
By *Chamberlain & Newman*
Attorneys

UNITED STATES PATENT OFFICE.

NILS H. ANDERSON, OF BRIDGEPORT, CONNECTICUT.

DIE CUTTING AND FORMING MACHINE.

1,284,969.

Specification of Letters Patent.

Patented Nov. 19, 1918.

Application filed January 31, 1917. Serial No. 145,660.

To all whom it may concern:

Be it known that I, NILS H. ANDERSON, a citizen of the United States, and resident of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Die Cutting and Forming Machines, of which the following is a specification.

My invention relates to new and useful improvements in die forming and cutting machines such as employ rotary cutters of relatively small diameter.

The object of the invention is to improve upon machines of this type by embodying means for securing a variable speed in order that cutters of different diameters may be used to the best advantage, as it is obvious that a cutter of small diameter should be driven at a much higher rate of speed per minute than a large cutter, in order to secure approximately the same surface speed on the small cutters as that used on cutters of large diameters, and further to generally improve and simplify the machine as will later be more fully explained.

With these and other objects in view the invention resides and consists in the construction and novel combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claims may be resorted to without departure from the spirit or sacrificing any of the advantages of the invention.

Similar characters of reference denote like or corresponding parts throughout the several figures of the accompanying drawings forming a part of this specification, and upon which,

Figure 1 shows a plan view of my improved form of machine complete, including motor and switch for operating the same.

Fig. 2 is a side elevation of the machine shown in Fig. 1 and

Fig. 3 is a front elevation of the same.

Referring in detail to the characters of reference marked upon the drawings 5 represents a bed upon the top side of which are formed two standards 6—6. A hanger 7 is pivoted intermediate of these standards upon alined screws 8—8 mounted in the upper end portions of the standards. A

motor 9 is mounted centrally upon the hanger and secured to the base thereof by means of screws 10 and as will be noted is so positioned that its center alines with the axis upon which the hanger swings. One of these standards is provided with an extension 6^a in which is formed a slot 11. This extension is in line with a support 12 of one of the arms of the hanger and in which is formed a tapped hole to receive the clamping screw 13 that passes through the slot 11 of the extension 6^a before mentioned and whereby the hanger and the motor carried thereby are secured in various positions after being adjusted.

The binding posts 14 of the motor, as will be seen, are connected by wires 15 with a switch 16 including a push button 17, for the purpose of controlling the current to the motor and whereby the latter is started and stopped as occasion may require.

Upon the forward end of the armature shaft 18 of the motor is mounted a large spherical faced disk 19 which serves as the driving member of the motor and whereby the power derived thereby is transmitted to the other and driven parts of the machine.

A column 20 is also formed integral with the base and is located forward of the standards before mentioned. The inner side of this column is finished to form ways 21 upon which a bracket 22 is slidably mounted and adapted to be raised and lowered by hand and secured in such adjusted positions by means of a shaft 23 having an eccentric thereon upon which is fitted one end portion of a stud 24, the head of said stud being fitted in a vertical T slot of the column. The handle upon the lower end of this shaft serves as a means for turning the shaft sufficient to move the stud longitudinally for the purpose of tightening or loosening its head against the inner face of the slot in which it is fitted. This bracket serves to support the operating spindle and includes alined bearings 25—25 that carry bushings 26—26 in which the spindle 27 is rotatably mounted. A friction member 28 is secured upon this spindle and is engaged by the spherical driven disk 19 upon the motor shaft. The upper end of this spindle is provided with a chuck 29 in which the cutting tool 30 is detachably secured by means of the operating wheel 31 mounted upon the lower end of the spindle. A tiltable table 32 is pivoted

at 33 to the column 20 and is provided with a hole 34 therethrough to accommodate the cutting tool before mentioned.

A post 35 is also secured to the base and extends up forward of the driving disk and is provided upon its upper end with an adjusting screw 36 upon which the forward end of the tiltable table rests. This post thus serves not only as a support for the table, but as an adjusting means whereby the table may be accurately set at a right angle or at any other desired angle with respect to the axis of the cutting tool.

While the machine in question is adapted to do various kinds of work requiring different forms of tools, yet it is particularly well adapted for cutting out and facing up dies and wherein a special style of spiral form of cutter is used. These cutters while slightly pointed upon their upper end yet have their cutting edges upon the sides thereby cutting the side surfaces of the work when pressed thereagainst. If the face of the table is set at a true right angle with respect to the axis of the cutting tool the surface produced by the cutter will likewise be formed at an accurate right angle to the face of the work. The face of the table may be set at a right angle to the axis of the cutter which will insure the forming of an opening in the die, having parallel sides. On the other hand, if it is desirable to make the sides slightly tapered for clearance, a tapered cutter must be used having the desired amount of clearance for the particular die required. Any degree of clearance can be effected upon all sides of the die so as to insure clean cutting and the stripping of the punched parts from the sheet metal stock.

From the foregoing description it will be noted that the motor and its driving disk member can readily be set to drive the spindles at variable speeds, as for instance, if the motor is tilted slightly more than what is shown in the drawing the spindle would obviously be driven at a correspondingly higher rate of speed, since the smaller disk would be engaging the larger diameter of the cone, while upon the other hand, if the motor were tilted and set to bring the armature shaft nearer to a horizontal position and the center of the driving cone nearer to the driven disk, the rate of speed would be materially reduced. This, as before suggested, is with a view of increasing or decreasing the speed of the cutting tool as may be required according to the sizes of the tools employed. The smaller the cutter the higher rate of speed desired, while the larger the cutter the lower rate of speed required in or-

der to obtain an approximate uniform peripheral surface speed of all size cutters.

Having thus described my invention what I claim and desire to secure by Letters Patent, is:—

1. In a die forming and cutting machine of the class described, the combination with a base having a column thereon, a spindle carried by the column, a friction member secured to the spindle, a supporting post mounted upon the base, a table pivoted to the column and supported upon the post, a motor mounted upon the base, a relatively large spherical disk mounted upon the motor spindle and engaging the friction member of the operating spindle, and means for adjusting the motor and disk to set the axis of the latter toward and from the friction member to change the speed of rotations of the spindle.

2. In a die forming and cutting machine of the class described, the combination with a base having a column thereon, of a bearing bracket adjustably mounted upon the column, a spindle mounted in the bearings, a friction member secured to the spindle, a supporting post mounted upon the base, a table pivoted to the column and supported upon the post, a motor mounted upon the base, a relatively large spherical disk mounted upon the motor spindle and engaging the friction member of the operating spindle, and means for adjusting the motor and disk to set the center of the latter toward and from the friction member to change the speed of rotations of the spindle.

3. In a die cutting and forming machine of the class described, the combination with a base having a column thereon, of a bracket adjustably mounted upon the column, a spindle mounted in bearings of the bracket, a friction member secured to the spindle, a supporting post mounted upon the base, a table pivoted to the column and supported upon the post, a pair of standards secured upon the base, a hanger pivotally hung between the standards, a motor mounted upon the hanger, a relatively large spherical disk mounted upon the motor spindle and engaging the friction member of the operating spindle, and means for adjusting the hanger, motor and disk to set the center of the latter to and from the friction member and to change the speed of rotations of the spindle.

Signed at Bridgeport in the county of Fairfield and State of Connecticut this 25th day of January, A. D., 1917.

NILS H. ANDERSON.

Witnesses:

C. M. NEWMAN,

RUTH M. W. KOGER.