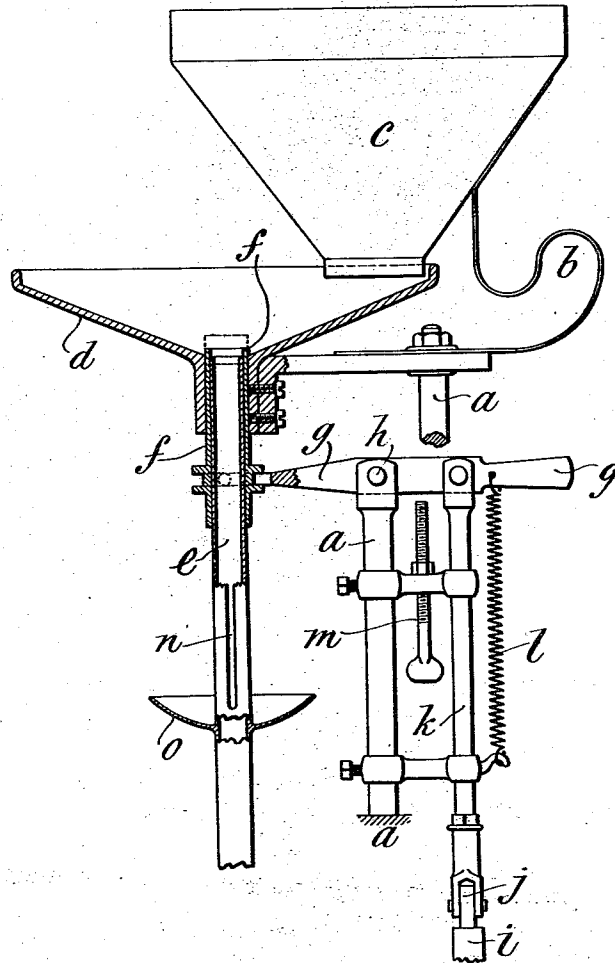


H. D. HODGE.
 MEANS FOR PILING DISKS.
 APPLICATION FILED JAN. 9, 1909.

944,364.

Patented Dec. 28, 1909.



Witnesses.
 E. B. Franzoni.
 L. R. Nevitt.

Inventor.
 H. D. Hodge.
 By his Attorneys
 Baldwin Wright.

UNITED STATES PATENT OFFICE.

HOWARD DOUGLAS HODGE, OF WALTHAM ABBEY, ENGLAND, ASSIGNOR TO NOBEL'S
EXPLOSIVES COMPANY, LIMITED, OF GLASGOW, SCOTLAND.

MEANS FOR PILING DISKS.

944,364.

Specification of Letters Patent. Patented Dec. 28, 1909.

Application filed January 9, 1909. Serial No. 471,444.

To all whom it may concern:

Be it known that I, HOWARD DOUGLAS HODGE, works manager, of Waltham Factory, Nobel's Explosives Co., Ltd., a citizen of the United States, residing at Joyce House, Waltham Abbey, Essex, England, have invented new and useful Improved Means for Piling Disks, of which the following is a specification.

10 The object of this invention is to provide improved means for arranging disks of any kind in piles.

The disks to be arranged are placed in a hopper, which may be called the feed-hopper and is carried on a support having a certain amount of spring or give in it. From this hopper they fall onto the edge of a second hopper which is in the shape of an inverted cone from the apex of which a tube passes vertically downward. The angle of the cone should be so large that the disks slide on their flat surfaces slowly down the cone toward the mouth of the tube which is of such diameter as just to take the disks. 25 Surrounding the top of the tube is a sleeve the upper edge of which in its lowest position is just below the top of the tube but the sleeve is capable of being moved rapidly and intermittently up and down so as to knock away from the mouth of the tube the disks which are crowding around it. The disks thus enter the tube with their axes vertical and form a pile in the tube from the bottom of which they may be removed as desired either singly or a number at a time. 35

The accompanying drawing is a sectional elevation of a machine made in accordance with this invention.

40 *a* is the frame of the machine secured to which by a spring support *b* is the feed hopper *c*. The slight movement of this hopper due to the vibration of the machine is sufficient to prevent the disks jamming in the mouth thereof from which mouth they fall onto the edge of the hopper *d* in the apex of which is the mouth of the vertical tube *e*. Surrounding the top of this tube

is a sleeve *f* carried by a lever *g* pivoted to the frame at *h*. An irregularly shaped cam *i* having upon it steep inclines acts upon a roller *j* carried by a rod *k* connected to the lever. An irregular up and down movement is thus given to the sleeve *f* by the rotation of the cam. The roller can be held 55 down against the cam by a spring *l* and an adjustable stop *m* may limit the movement of the sleeve.

The tube may have in it a vertical slit *n* through which any disk which may happen 60 to have got into the tube on edge may fall out or be withdrawn and a tray *o* may be arranged upon the tube to catch such disks.

What I claim is:—

1. In a machine for piling disks, the combination of a hopper the bottom of which gradually slopes from its apex to its periphery, a tube extending downward from the apex of the hopper through which the disks are delivered, and a receptacle arranged above the hopper which delivers the disks on to the edge thereof. 70

2. In a machine for piling disks, the combination of a conical hopper the bottom of which slopes gradually from its apex to its periphery, a tube extending downward from the apex of the hopper, a sleeve surrounding the top of the tube and capable of an up-and-down movement thereon, and a receptacle for disks which delivers them onto the edge of the hopper. 80

3. In a machine for piling disks, the combination of a conical hopper, a feed hopper adapted to feed disks onto the edge of the conical hopper, and a spring support for 85 the feed hopper.

4. In a machine for piling disks, the combination of a conical hopper, a tube extending downward from the apex thereof, and vibratory means for holding and delivering 90 disks successively to the hopper near its edge.

HOWARD DOUGLAS HODGE.

Witnesses:

A. NUTTING,
PERCY PHILLIPPS.