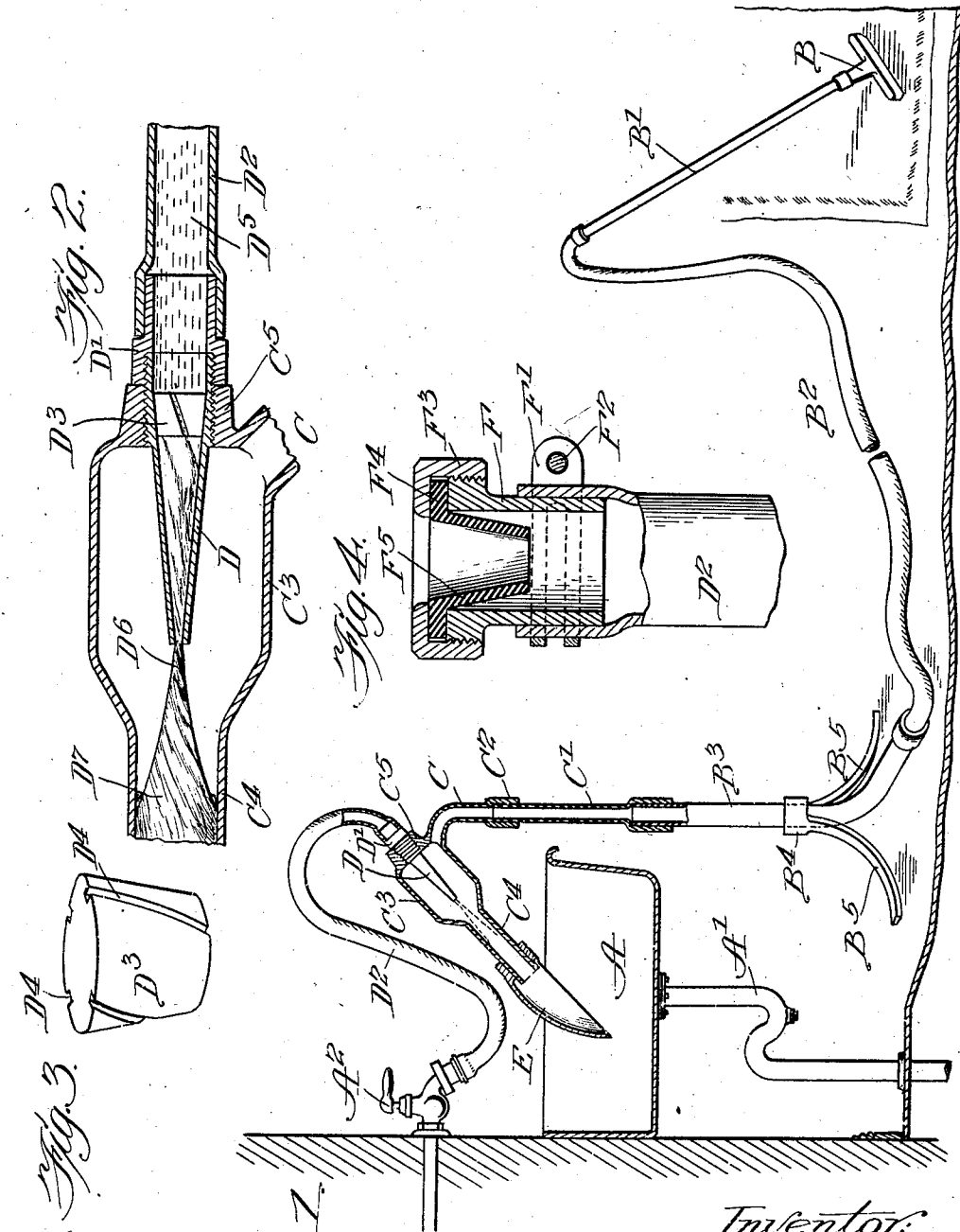


E. B. SYMONS.
VACUUM CLEANER.
APPLICATION FILED DEC. 10, 1910.

1,037,368.

Patented Sept. 3, 1912.



Witnesses:
J. H. Hahnemann
Minnie M. Lindenau.

Inventor:
Edgar B. Symons.
By *Parker & Co.*
Attorneys.

UNITED STATES PATENT OFFICE.

EDGAR B. SYMONS, OF MILWAUKEE, WISCONSIN.

VACUUM-CLEANER.

1,037,368.

Specification of Letters Patent.

Patented Sept. 3, 1912.

Application filed December 10, 1910. Serial No. 596,597.

To all whom it may concern:

Be it known that I, EDGAR B. SYMONS, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a certain new and useful Improvement in Vacuum-Cleaners, of which the following is a specification.

My invention relates to improvements in vacuum cleaners and has for one object to provide pumping means therefor, wherein a stream of water in the shape of a spray or an attenuated stream inclosed in a pipe or flowing through a contracted passage operates or forms the pumping means and at the same time operates to take up and carry off the debris collected. It is illustrated diagrammatically in one form in the accompanying drawing, wherein—

Figure 1 is a part elevation and sectional view of a complete apparatus; Fig. 2 is a detail of the nozzle; Fig. 3 of the plug within the nozzle; Fig. 4 of the nozzle attachment device.

Like parts are indicated by the same letter in all the figures.

A is a sink, A¹ a discharge pipe therefrom and A² the usual water faucet of the water system.

B is a suction tool adapted to be applied to a carpet or rug and provided with a tubular handle B¹, the hose B² which is connected with the lower end of a curved pipe B³ associated with a collar B⁴ whence project the legs B⁵ B⁵ which with the lower curved portion of the pipe B³ form a stand.

C is a downwardly curved pipe, C¹ a coupling adapted to be inserted in the head C² of the pipe C and to be applied over the upper end of the pipe B³.

C³ is a body having a contracted pipe C⁴ at one end and a screw threaded opening C⁵ at the other. Into this opening is inserted the water discharge nozzle D which is preferably screw threaded to the coupling piece D¹ onto which the hose section D² is slipped. Within the nozzle I have placed means for imparting a spiral motion to the water. In the particular case illustrated, it consists of a plug D³ having the spiral grooves D⁴ D⁴ through which the water passes. The solid stream of water is indicated at D⁵, the small spiral discharge stream at D⁶ and the large or diffused stream or sprayed mass of water

at D⁷. It will be observed that the diffused stream of water has its maximum cross section, which is equal to that of the contracted pipe or passage C⁴, at some point between the ends of that passage which is the preferred method of operation.

E is a shield at the outer end of the pipe C⁴.

The hose pipe D² is adapted to be attached to the nozzle A² and in order to make this attachment easy and convenient for faucets of different sizes, I have provided the coupling piece illustrated in Fig. 4. The upper end of the pipe D² is slipped over the thimble F being screwed in position thereto if desired by the band F¹ secured by the pin F². The upper end of the thimble F is screw threaded to receive the cap F³ and between the cap and thimble is secured the outwardly projecting flange F⁴ of the funnel shaped flexible part F⁵. It is this latter part which is slipped over the end of the faucet and the parts are so arranged that the coupling is adapted to various sizes of faucets.

Any kind of apparatus adapted for vacuum cleaning apparatus may be employed and I have alluded to the same simply as a suction tool, meaning by that term to include any such apparatus. By the term nozzle, I mean any suitable device for discharging in the manner suggested, a stream of water which will issue in diffused form and I have used the term contractor to indicate the pipe or passage way into which or through which the diffused stream of water is thrown or forced.

It will be obvious that many of the parts shown could be greatly changed without departing from the spirit of my invention. I therefore wish my drawings to be taken as diagrammatic and in describing the structure I do not wish to be understood as thereby limiting myself to the particular form shown.

I employ a stream which leaves the nozzle and expands into a stream of larger cross-sectional area, which expansion may be accompanied by a decrease in density, that is, the solid stream may break up into fine globular particles of water, each surrounded by air. The stream which enters the contractor is perhaps made up of finely divided particles of water carrying with them a rel-

atively large amount of air which is replaced by the in-rush of air through the suction pipe.

I claim:

- 5 1. An aspirator comprising a closed air chamber, a conical nozzle discharging therein along an axial line, a contracted discharge pipe leading from the end of said chamber removed from the nozzle and concentric
10 with the nozzle, an air intake port leading to said air chamber at a point removed from said discharge pipe, means for discharging a whirling, conical, outwardly extending column of water from said nozzle through
15 said chamber and into said discharge pipe, said means comprising a water supply pipe leading to the nozzle, and a plug located at the base of the nozzle and between it and the supply pipe having a plurality of spiral
20 grooves therein.
2. An aspirator comprising a closed air chamber, a conical nozzle discharging therein along an axial line, a contracted discharge pipe leading from the end of said chamber
25 removed from the nozzle and concentric with the nozzle, an air intake port leading to said air chamber at a point removed from said discharge pipe, means for discharging a conical, diffused, gradually expanding stream of water which expands into and completely fills the discharge pipe but is of smaller cross-sectional area than the discharge pipe at the point where it leaves the chamber.

cal, diffused, gradually expanding stream of water which expands into and completely fills the discharge pipe but is of smaller cross-sectional area than the discharge pipe at the point where it leaves the chamber.

3. An aspirator comprising a closed air chamber, a conical nozzle discharging therein along an axial line, a contracted discharge pipe leading from the end of said chamber removed from the nozzle and concentric with the nozzle, an air intake port leading to said air chamber at a point removed from said discharge pipe, means for discharging a conical, diffused, gradually expanding stream of water which expands into and completely fills the discharge pipe but is of smaller cross-sectional area than the discharge pipe at the point where it leaves the chamber, said means comprising a water supply pipe leading to the nozzle, and a plug located at the base of the nozzle and between it and the supply pipe having a plurality of spiral grooves therein.

EDGAR B. SYMONS.

Witnesses:

P. W. Post,
F. A. Otto.